



BWP-11-011-18

Note : Four possible choices A, B, C, D to each question are given. Which choice is correct, fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question.

Q.No.1	The Mass of One Mole of Electrons is :
(1)	(A) 1.008 mg (B) 0.55 mg (C) 0.184 mg (D) 1.673 mg
(2)	A ring has 6.0 g of diamond (C) in it. Calculate the number of atoms of Carbon in it : (A) $6.02 \times 10^{23}$ (B) $3.01 \times 10^{23}$ (C) $9.03 \times 10^{23}$ (D) $1.8 \times 10^{24}$
(3)	Solvent Extraction is an equilibrium process and it is controlled by : (A) Law of Mass Action (B) The Amount of Solvent used (C) The Amount of Solute (D) Distribution Law
(4)	The Molar Volume of $\text{CO}_2$ is maximum at : (A) STP (B) $127^\circ\text{C}$ and 1 atm (C) $0^\circ\text{C}$ and 2 atm (D) $273^\circ\text{C}$ and 2 atm
(5)	When water freezes at $0^\circ\text{C}$ , its Density decreases due to : (A) Cubic Structure of Ice (B) Empty spaces present in the structure of Ice (C) Change of Bond Lengths (D) Change of Bond Angles
(6)	Which of the given is a Pseudo Solid : (A) $\text{CaF}_2$ (B) Glass (C) NaCl (D) KBr
(7)	The Velocity of Photon is : (A) Independent of its Wavelength (B) Depends on its Wavelength (C) Equal to Square of its Amplitude (D) Depends on its Source
(8)	When 6d Orbital is complete, the entering electron goes into (A) 7f (B) 7s (C) 7p (D) 7d
(9)	Octet Rule is not followed in : (A) $\text{CH}_4$ (B) $\text{CF}_4$ (C) $\text{CCl}_4$ (D) $\text{PCl}_5$
(10)	Which one of the following Hydrogen Halide has the highest percentage of Ionic character : (A) HCl (B) HBr (C) HF (D) HI
(11)	For the reaction $\text{NaOH} + \text{HCl} \longrightarrow \text{NaCl} + \text{H}_2\text{O}$ the change in enthalpy is called : (A) Heat of Reaction (B) Heat of Formation (C) Heat of Neutralization (D) Heat of Combustion
(12)	The pH of Milk of Magnesia is : (A) 10.5 (B) 3.5 (C) 8.5 (D) 11.1
(13)	The solubility product of AgCl is $2.0 \times 10^{-10} \text{ mol}^2 \text{ dm}^{-6}$ . The maximum concentration of $\text{Ag}^+$ Ions in the solution is : (A) $2.0 \times 10^{-10} \text{ mol dm}^{-3}$ (B) $1.41 \times 10^{-5} \text{ mol dm}^{-3}$ (C) $1.0 \times 10^{-10} \text{ mol dm}^{-3}$ (D) $4.0 \times 10^{-20} \text{ mol dm}^{-3}$
(14)	A solution of Glucose is 10% w/v. The volume in which 1 g mole of it is dissolved, will be : (A) $1 \text{ dm}^3$ (B) $1.8 \text{ dm}^3$ (C) $200 \text{ cm}^3$ (D) $900 \text{ cm}^3$
(15)	The Number of Moles of Solute per kg of Solvent is called : (A) Molality (B) Molarity (C) Mole Fraction (D) Normality
(16)	The Cathodic Reaction in the electrolysis of dil $\text{H}_2\text{SO}_4$ with Pt electrodes is : (A) Reduction (B) Oxidation (C) Both Oxidation and Reduction (D) Neither Oxidation or Reduction
(17)	A substance which makes the Catalyst more effective is called : (A) Inhibitor (B) Retarder (C) Promotor (D) Autocatalyst

B

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Roll No.	813 - <i>2020</i>	New Pattern	Inter (Part - I) / Group Ist
Chemistry (Subjective)	Inter-A-2018	Time : 2 : 40 Hrs Marks = 68	Session (2015 - 17) to (2017 - 19)

Note : It is compulsory to attempt any (8 - 8) parts each from Q.No.2 and Q.No.3 and attempt any (6) parts from Q. No.4 .  
Attempt any (03) questions from Part II Write same Question No. and its Part No. as given in the question paper.

Make Diagram where necessary.

Part - I

*BWP-11-G11-18* 22 x 2 = 44

Q.No.2 (i) Define Mass Spectrum.

(ii) Write down only steps to determine Limiting Reactant.



(iii) Calculate Percentage of Nitrogen in Urea. ( $\text{H}_2\text{N} - \text{C} - \text{NH}_2$ )

(iv) Mention only steps involved in complete quantitative determination.

(v) Write down any two uses of Chromatography.

(vi) Why Liquids are less common than Solids and Gases?

(vii) Define Diffusion and Effusion.

(viii) Why is the Critical Temperature of Water higher than Argon?

(ix) Define Reversible Reaction. Give one example.

(x) State Law of Mass Action.

(xi) What is the effect of Catalyst on Equilibrium Position?

(xii) Write down any two uses of Buffer Solutions.

Q.No.3 (i) Ice Floats on Water. Give reason.

(ii) Describe the importance of Vacuum Distillation.

(iii) Define Transition Temperature with one example.

(iv) Ionic Crystals are highly brittle, why?

(v) Differentiate between Bonding and Antibonding Molecular Orbitals.

(vi) Define Electronegativity and Electron Affinity of an Atom.

(vii) Why is size of Anion greater than Parent Atom?

(viii) Why the Atomic Radii of the Atoms cannot be determined precisely?

(ix) Burning of a Candle is a Spontaneous Process. Justify.

(x) Define Standard Enthalpy of Atomization with an example.

(xi) Differentiate between Ideal and Non-Ideal Solution.

(xii) Aqueous Solution of  $\text{CuSO}_4$  is Acidic in Nature. Justify it.

Q.No.4 (i) Write Electronic Configuration of Na = 11 and Cr = 24

(ii) Explain Hund's Rule by giving an example.

(iii) Explain Atomic Emission Spectrum.

(iv) Write down two equations when slow moving Neutrons hit the Cu Metal.

(v) How is the Surface Area affects the rate of Reaction?

(vi) Describe Half Life Method to determine order of reaction.

(vii) SHE acts as Anode when connected with Cu-Electrode but as Cathode with Zn-Electrode, give reason.

(viii) How Electrochemical Series helps to predict the feasibility of a chemical reaction? Give an example.

(ix) What is Anodized Aluminium? How is it prepared?

Part - II

Q.No.5 (a) Ethylene Glycol is used as Automobile Antifreeze. It has 38.7% Carbon, 9.7% Hydrogen and 51.6% Oxygen. Its Molar Mass is  $62.1 \text{ g mol}^{-1}$ . Determine its Empirical Formula. (4)

(b) What are Molecular Solids? Write their three properties. (4)

Q.No.6 (a) Define Joule Thomson Effect and write Linde's Method for Liquefaction of Gases. (4)

(b) Define Quantum Numbers and explain Principal Quantum Number. (4)

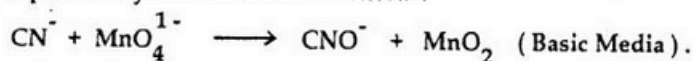
Q.No.7 (a) Define Atomic Orbital Hybridization and describe the structure of Ethyne by it. (4)

(b) Define Enthalpy. How is it determined with help of Bomb's Calorimeter. (4)

Q.No.8 (a) Explain the following applications of Equilibrium Constant. Give examples. (4)

(i) Direction of Reaction (ii) Extent of Reaction.

(b) Balance the following equation by Ion-Electron Method :



Q.No.9 (a) Calculate the Mole Fraction of each component in a solution having 92.0 g of Ethyl Alcohol, 96.0 g of Methyl Alcohol and 90.0 g of Water. (4)

(b) Explain Energy of Activation. (4)